ADDENDUM No. 2

TO: ALL BIDDERS

FROM: CITY OF HIALEAH

RFP #: 2015/16-3210-00-005

RE: **Reconstruction Of**
WEST 31ST STREET AND WEST 32ND STREET FROM
WEST 12TH AVENUE TO WEST 9TH AVENUE
WEST 11TH AVENUE AND WEST 9TH AVENUE FROM
WEST 30TH STREET TO WEST 33RD STREET

DATE: **September 7, 2016**

The original contract documents for the entitled: **Reconstruction of WEST 31ST STREET AND WEST 32ND STREET FROM WEST 12TH AVENUE TO WEST 9TH AVENUEWEST 11TH AVENUE AND WEST 9TH AVENUE FROM WEST 30TH STREET TO WEST 33RD STREET** needs to be amended as noted in this Addendum No. 2.

This Addendum No. 1 consists of 2 typed pages, 1 attachment, and 1 addendum receipt form (ARF). All other items and conditions of the original Contract Documents shall remain unchanged. This Addendum shall become a part of the Contract Documents.

Approved for issue: _____ Date: September 7, 2016
Angel Ayala – Purchasing Director

ACKNOWLEDGMENT

Receipt of this Addendum No. 2 shall be acknowledged in the space provided on the ADDENDUM RECEIPT form – ARF (Copy attached) now a part of the Contract Documents to be faxed immediately to the City of Hialeah Purchasing Division (305) 883-5871 and submitted with sealed bids.

QUESTIONS AND ANSWERS:

Southeastern Engineering INC.:

Q1. Item No. 29, Contingency, of page 29 of the bid form does not has and assigned value. Can you provide an amount or a percentage to this contingency item?

A1. Please leave this item blank. City of Hialeah will assign a fixed contingency amount prior to awarding project.

Florida Engineering & Development Corp..

Q1. Can you provide us the Geotechnical Report if there is one?

A1. Yes, Geotechnical Report is attached.

Q2. Who is responsible for the payment of the density tests?

A2. The Contractor is responsible for the cost of the density tests.

Q3. In the bid package, item 19, section 102, it is stated "Contractor to call for and hire off-duty police officers for directing the traffic and maintaining safety...." , since it is very difficult for us to quantify the numbers of hours/officers, and all the contractors can be on the same page, can you provide us with an allowance for this items?

A3. An allowance for this item will not be provided. The roads being reconstructed as part of this project will be closed while construction is taking place, only local traffic will be allowed to enter construction area. Off-duty Police Officers will only be required for lane closures outside construction zone / project limits or if a hazardous condition arises during construction.

Q4. Should the contractor at the end of the project clean the new drainage system?
Please advise, thanks?

A4. The new drainage system must be turned over to the City clean and fully functional.

END OF ADDENUM No. 2

CITY OF HIALEAH
Reconstruction Of
WEST 31ST STREET AND WEST 32ND STREET FROM
WEST 12TH AVENUE TO WEST 9TH AVENUE
WEST 11TH AVENUE AND WEST 9TH AVENUE FROM
WEST 30TH STREET TO WEST 33RD STREET

ADDENDUM No. 2

CONTRACTOR'S NAME _____

ADDRESS _____

PHONE NO. _____

CONTACT NAME _____ SIGNATURE _____

THE BIDDER ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDUM BY SIGNING AND DATING BELOW:
(Copy of this form must be faxed immediately to the City of Hialeah at (305) 883-5871).

ADDENDUM	SIGNATURE	DATE
2		

ARF

PSI Information To Build On
Engineering • Consulting • Testing

March 18, 2016

The Corradino Group Inc.
4055 N.W. 97TH Avenue
Miami, FL 33178

Attention: Marvin Guillen, E.I.
Project Manager

Re: Report of Geotechnical Engineering Services – Roadway Soil Survey
Hialeah Roadway Improvements
W 32nd Street from W 12th Avenue to W 8th Avenue
W 31st Street from W 12th Avenue to W 8th Avenue
W 11th Avenue from W 30th Street to W 33rd Street
W 9th Avenue from W 30th Street to W 33rd Street
City of Hialeah, Florida
PSI Project No.: 0397-1042

Dear: Mr. Guillen:

Professional Service Industries, Inc. (PSI) has completed a geotechnical engineering study in connection with the noted project. Our services were provided in general accordance with PSI Proposal No. 0397-159014, dated August 5, 2015.

We trust this report is adequate for your current needs; however, should you have any questions or should additional information be required, please do not hesitate to contact our office at (305) 471-7725.

Respectfully Submitted,

Professional Service Industries, Inc.
Certificate of Authorization No: 3684

Riley O'Brien, E.I.
Department Manager

Morgan Dickinson, P.E.
Principal Consultant
FL License No. 37597

cc: Addressee (1 PDF)
File (1 and PDF)

TABLE OF CONTENTS

1.0 PROJECT INFORMATION

The roadway improvement project encompasses approximately 6,900 linear feet of roadway as follows:

- W 32nd Street from W 12th Avenue to W 8th Avenue
- W 31st Street from W 12th Avenue to W 8th Avenue
- W 11th Avenue from W 30th Street to W 33rd Street
- W 9th Avenue from W 30th Street to W 33rd Street

A site vicinity map identifying the limits of the study is presented on **Figure 1** of **Appendix A**.

As we understand, roadway reconstruction and drainage improvements are planned within the neighborhood. The traffic pattern along the roadway consists of two lanes of traffic (one in each direction). The existing right-of-way along the roadway is covered by asphaltic pavement, exposed granular fill, grass and trees. Photographs from our site visit are presented on **Figures 2** and **3** of **Appendix A**.

If any of the noted information is incorrect or has changed, please notify PSI so that we may amend the recommendations presented in this report, if appropriate.

2.0 FIELD AND LABORATORY TESTING

2.1 STANDARD PENETRATION TEST (SPT) BORINGS

To evaluate subsurface conditions at the site, we performed a total of fourteen Standard Penetration Test (SPT) borings that were extended to depths of 6 and 15 feet below grade. The SPT Borings were drilled using the techniques of ASTM D-1586 and performed at the approximate locations shown on **Figure 4** of **Appendix A**.

After seating the sampler six inches, the number of successive blows required to drive the sampler twelve inches into the soil constitutes the test result commonly referred to as the "N" value. The "N" value has been empirically correlated with various soil properties and is considered to be indicative of the relative density of cohesionless soils and the consistency of cohesive soils. The SPT borings were performed using a CME-55 truck mounted drill rig equipped with an automatic hammer. The recovered split spoon samples were visually classified in the field and transported to the laboratory for further review.

The boring locations were marked in the field using the available plans with reference to existing site features. Plane coordinates data was collected at each boring location using a hand held GPS instrument with the reported data being accurate to within 15 feet.

Utility clearances were coordinated by PSI and updated as required. During field explorations, flagmen, barricades, cones and sign devices were used as necessary in compliance with the applicable FDOT Roadway and Traffic Design Standards (Index 600 series).

After completion of the borings, the boreholes were backfilled, the asphaltic surface patched where necessary and the site was generally cleaned, as required.

2.2 PERCOLATION TESTS

PSI performed four percolation tests at depths of 15 feet below grade within SPT borings B1, B-7, B-8, and B-14. The percolation tests were performed in general accordance with the South Florida Water Management District (SFWMD) procedures for the "Usual Condition Constant Head" Percolation Test. SPT sampling was performed simultaneously as the boreholes were advanced using a 6-inch diameter casing. A 4-inch diameter perforated PVC pipe was placed in the borehole prior to retrieving the casing. Water was then pumped into the borehole in order to raise the water level as close to the ground surface as possible. Once the inflow equalized with the outflow rate, the average pumping rate and level of the water for this stabilized flow rate was recorded.

The hydraulic conductivity values determined from the tests are presented in **Table 1** of **Appendix B**. The values are in units of cubic feet of flow per second, per square foot of seepage area, per foot of head (cfs/ft^2-ft). The tabulated values are ultimate values. The designer should apply an appropriate factor of safety.

3.0 GENERALIZED SUBSURFACE CONDITIONS

3.1 GENERAL

Based on the results of the field exploration program, the near surface soils along the project alignment have been grouped into six different strata as noted in the table below. Each stratum group exhibits a range of engineering properties related to suitability for roadway construction as outlined by FDOT Standard Index 505.

The soil types encountered at the boring locations are presented in the form of detailed individual logs in **Appendix A**. The general stratification presented below is based on visual observation of the recovered soil samples and the interpretation of field logs by a geotechnical engineer. Included with the profiles are the N-values and groundwater levels measured at the time the borings were drilled.

STRATUM	SOIL DESCRIPTION	AASHTO
1	**ASPHALT**	---
2	**TOPSOIL**	A-8
3	Light Brown/Gray **LIMEROCK** with Fine Sand/ Silty Sand	A-1-a/A-1-b
4	Light Brown/Gray Fine **SAND** with Traces of Limerock	A-3
5	Light Brown/Gray **LIMESTONE** with Fine Sand	---
6	Light Brown/Gray Fine **SAND**	A-3

3.2 GROUNDWATER CONDITIONS

At the time of our field exploration, the groundwater table where encountered was at depths ranging from 4.3 to 5.5 feet below grade. It should be noted that groundwater levels fluctuate seasonally as a function of rainfall, and the infiltration rate of the soil. Therefore, at a time of year different from the time of drilling, there is a possibility of a change in the recorded levels. We estimate that during the peak of the wet hydroperiod, with rainfall and recharge at a maximum, groundwater levels at the site could be approximately 18 inches higher than those reported herein. We recommend that the contractor determine the actual groundwater levels at the time of construction to assess groundwater impact on the construction procedure.

4.0 ENGINEERING EVALUATION AND RECOMMENDATIONS

4.1 SOIL USAGE SUMMARY

The subsurface materials are generally considered suitable and are not expected to impose geotechnical constraints or limitations on the planned roadway improvements, provided the subgrade is prepared prior to placement of the new pavement.

4.2 SUBGRADE PREPARATION

The exposed roadway subgrade should be proof-rolled until compaction is achieved to a depth of 12 inches below the working surface. Pumping, cracking and other unusual distortion of the surface under the weight of the roller is indicative of underlying pockets of soft soils which should be removed over the width of the proposed pavement and shoulders plus a foot on each side and replaced with structural fill in accordance with Florida Department of Transportation (FDOT) Standard Index 505 and the latest FDOT Standard Specifications for Roads and Bridge Construction.

4.3 STRUCTURAL FILL REQUIREMENTS

Structural fill, if used (to achieve the final pavement grades) should consist of materials conforming to FDOT Standard Index 505. In general, the structural fill to be placed in pavement backfill areas should consist of inorganic, non-plastic, clean sand or limerock free of any manmade debris. The fill materials should contain less than 10% percent material passing the No. 200 mesh sieve. The maximum particle size of the limerock should not exceed three inches. The structural fill to be compacted with a heavy vibratory roller should be placed in lifts not exceeding twelve inches in loose thickness. The structural fill to be compacted with a vibratory plate, or a small walk-behind vibratory roller should be placed in lifts not exceeding six inches in loose thickness. Compaction requirements should be in general accordance with Section 120-9 of the FDOT Standard Specifications for Road and Bridge Construction.

It is imperative that the fill supporting new pavements be placed, compacted and tested until the maximum density is achieved. The tests should be performed by a qualified Soils Technician under the supervision of a Geotechnical Engineer, in accordance with appropriate ASTM procedures. Any fill area indicating less than the recommended compaction should be re-compacted until the required density is obtained prior to the placement of subsequent lifts.

4.4 Pavement Design Considerations

The proposed new pavement section should include a base course consisting of limerock, with a minimum LBR value of 100 percent, meeting the requirements of the FDOT "Standard Specifications for Road and Bridge Construction", Section 911. The base material should overlie stabilized subgrade with a minimum LBR value of 40. In areas of LBR values less than 40, the subgrade should be stabilized to a depth of 12 inches. This can be achieved by blending base materials with the existing subgrade soils. Both the base course and stabilized subgrade should be compacted to at least 100 percent of maximum dry density (AASHTO T-99). The thickness of the asphalt, base and subgrade should be as per the pavement design requirements.

Observing FDOT criteria, a minimum separation of three feet is recommended between the bottom of the pavement base and the estimated normal wet season groundwater table. The point of reference for this measurement would normally be the lowest point of the base. If the above minimum separation cannot be met, then the appropriate resilient modulus reduction factor should be used. From section 5.2.2 of the FDOT Flexible Pavement Design Manual, when the base clearance is less than three feet, the pavement designer must reduce the Design Resilient modulus as noted below:

- For two feet of Base Clearance; apply a 25% modulus reduction
- For one-foot Base Clearance; apply a 50% modulus reduction

If one-foot base clearance cannot be met the normal practice is the use of under-drains.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 General Roadway Construction Recommendations

The following are our recommendations for overall site preparation and mechanical densification, based on our exploration results and the anticipated construction. These recommendations along with those for "Subgrade Preparation" and "Structural Fill Requirements" stated earlier should be used as guidelines for the Design Engineer preparing specifications. Site preparation and filling should be in accordance with sections 110 and 120 of the FDOT Standard Specifications for Road and Bridge Construction and FDOT Standard Indices 500 and 505.

1. The roadway width should be stripped and cleared of existing pavement, topsoil and any unsuitable materials (if encountered). A Geotechnical Engineer or representative should observe the stripped grade to document adequate depth of stripping, prior to backfilling and filling.

2. The stripped and compacted backfilled areas should be leveled sufficiently to permit equipment traffic, cut to grade if necessary, and then compacted using a large diameter, self-propelled or tractor drawn roller. The roller should be operated in static mode and be capable of exerting a minimum impact force of 15 tons.
3. Careful observations should be made during proof-rolling to help identify any areas of soft yielding soils that may require over-excavation and replacement. Care should be used when operating the compactor near existing structures (including underground structures such as pipelines and residential buildings) to avoid transmission of vibrations that could cause settlement damage or disturb occupants. Use of a smaller vibratory or static compactor may be necessary in some instances. Construction operations that may be affected by vibration, such as concrete placement, if any, should be scheduled at times when nearby compaction operations are not taking place.
4. Prior to any field construction operations, we recommend that a survey be performed (including pictures and/or video) of existing structures located adjacent to the existing right-of-way. Documentation should be made of any foundation problems or structural distress noted by owners. If any problems are evident or substantial objections voiced by property owners, consideration should be given to monitoring vibrations during compaction. It is also recommended that a follow-up photographic and visual survey be performed after the compaction operations.
5. Prior to beginning compaction, soil moisture contents may need to be controlled in order to facilitate proper compaction. If additional moisture is necessary to achieve compaction objectives, then water should be applied in such a way that it will not cause erosion or removal of the subgrade soils. A moisture content within two percentage points of the optimum indicated by the AASHTO test method T-180, Method C, is recommended
6. Earthwork and related operations should be conducted in accordance with Section 120 of the FDOT Standard Specifications for Road and Bridge Construction.
7. An experienced, qualified Geotechnical Engineer should be retained to provide on-site observation of earthwork activities. Monitoring should include the visual observation of stripping asphalt and topsoil, placement of approved fills, proof-rolling and compaction testing. Density tests should be performed in surficial fill material after proof-rolling and in each fill lift thereafter. It is important that careful observation be made to confirm that the subsurface conditions are as we have discussed herein, and that fill placement is in accordance with our recommendations, project specifications and the latest FDOT Standard Specifications for Road and Bridge Construction.

5.2 GROUNDWATER CONTROL

During subgrade preparation, the soils below design grade could become disturbed by construction activities due to heavy rainfall conditions or temporarily perched water. If this becomes the case, the contractor may be directed by the owners' representative to remove the disturbed or pumping soils to a depth of 12 to 18 inches below design grade and backfill the area with structural fill in accordance with FDOT Index 505 and the latest FDOT Standard Specifications for Roads and Bridge Construction.

Surface water and groundwater control may be necessary during construction to permit establishment of a stable bottom. A section of the construction area could be dammed off, and water diverted through a temporary ditch or pumped around construction activities. If a pump is used, a standby pump is recommended.

Depending upon shallow groundwater levels at the time of construction, seepage may enter from the bottom and sides of the excavation. Such seepage will act to loosen soils, and create difficult working conditions. Therefore, it may be necessary to wellpoint or sump pump and rim ditch the construction area. Groundwater levels should be determined immediately prior to construction. Shallow groundwater should be kept at least 24 to 36 inches below the lowest working area to facilitate proper material placement and compaction.

6.0 REPORT LIMITATIONS

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on these data. No other warranties are expressed or implied. The scope of the investigation was intended to evaluate soil conditions within the influence of the expected roadway pavement section.

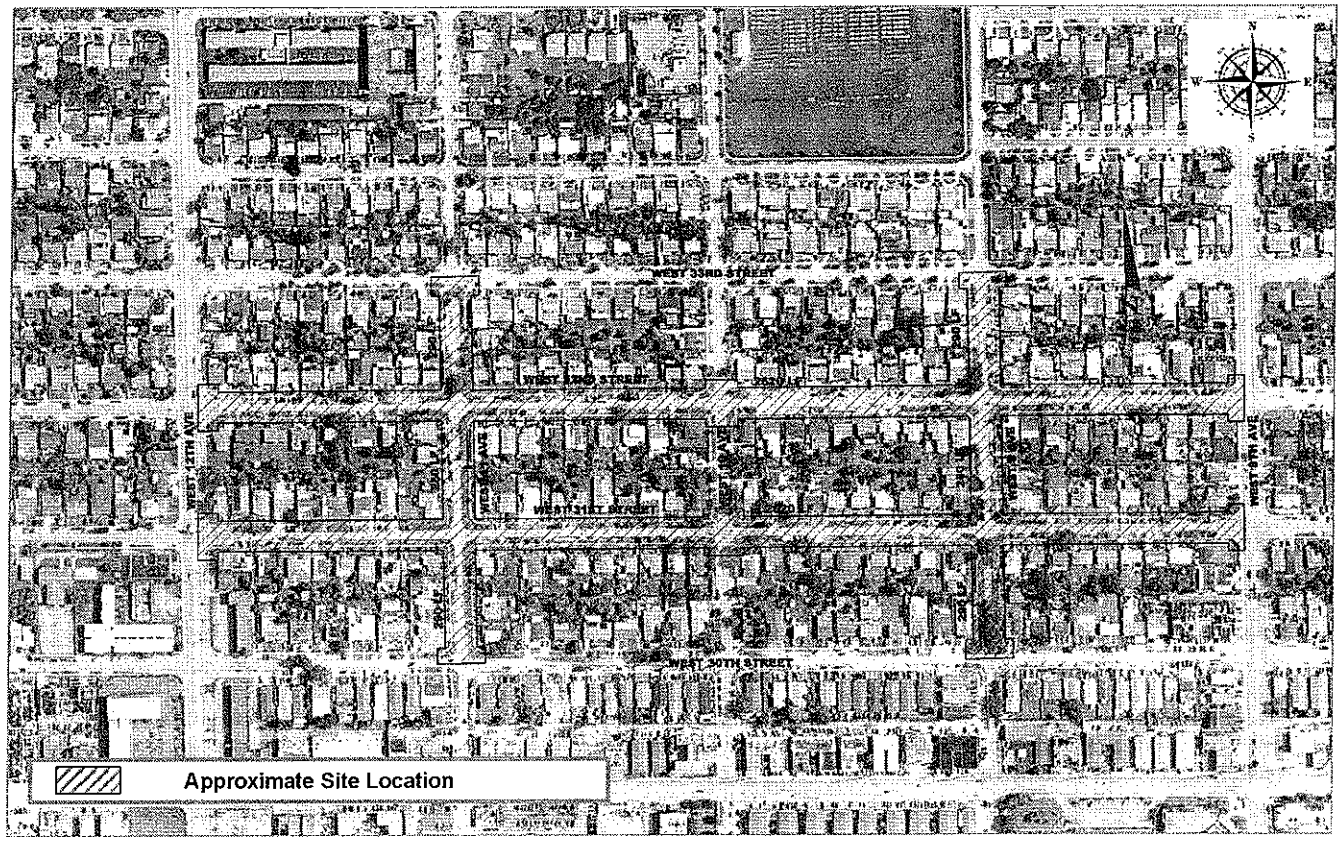
The analysis and recommendations submitted in this report are based upon the data obtained from the soil borings performed at the locations indicated. If any subsoil variations become evident during the course of this project, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered. The applicability of the report should also be reviewed in the event significant changes occur in the design, nature or location of the proposed roadway.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

This report has been prepared for the exclusive use of The Corradino Group, Inc. and their design consultants, for the specific application to the design and construction of the subject project in the City of Hialeah, Florida.

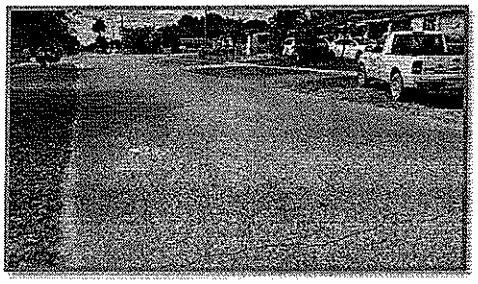
APPENDIX A

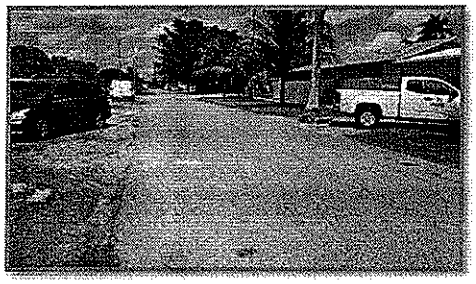
SITE VICINITY MAP

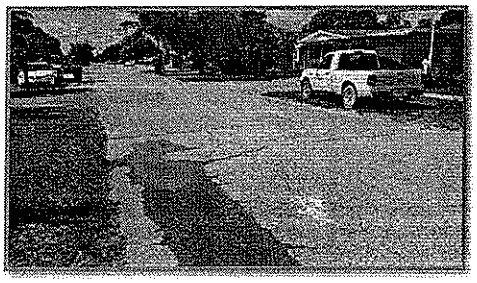


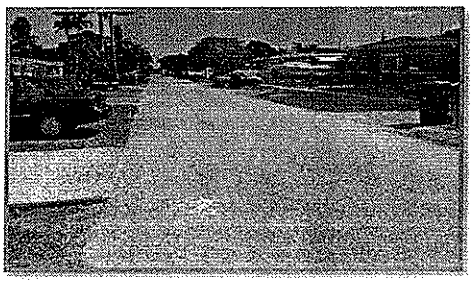
GEOTECHNICAL ENGINEERING SERVICES Hialeah Street Improvements Hialeah, Miami-Dade County Florida	DATE: 03/17/2016 DRAWN: CA	psi Information To Build On Engineering • Consulting • Testing
FIGURE No.: 1	PSI PROJECT No.: 0397-1042	CHKD:: JD

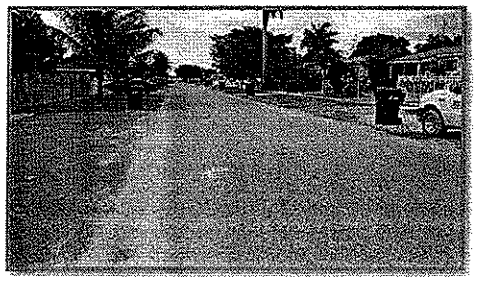
SITE PHOTOGRAPHS

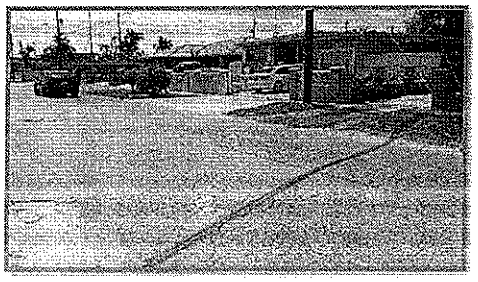


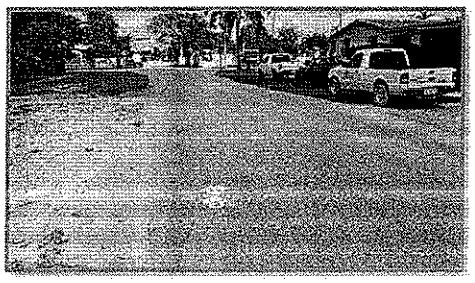






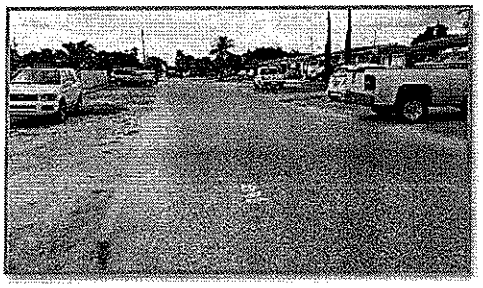
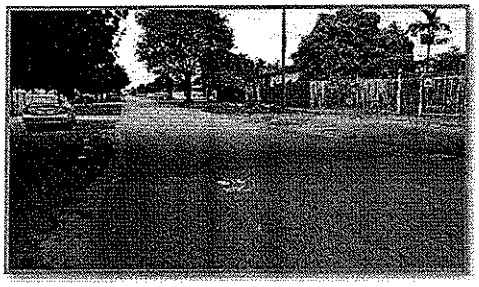
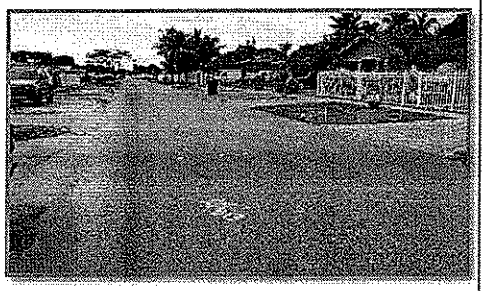
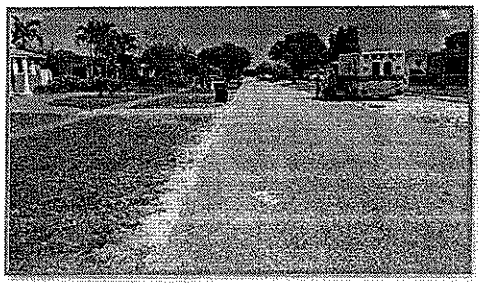


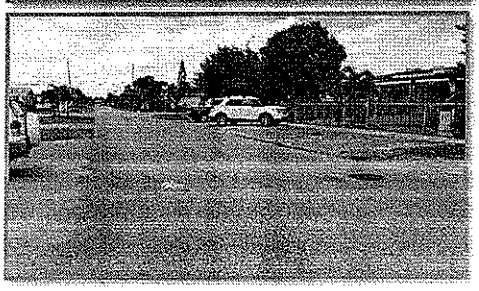




GEOTECHNICAL ENGINEERING SERVICES Hialeah Street Improvements Hialeah, Miami-Dade County Florida		DATE: 03/17/2016	psi Information To Build On Engineering • Consulting • Testing
		DRAWN: CA	
FIGURE No.: 2	PSI PROJECT No.: 0397-1042	CHKD:: JD	

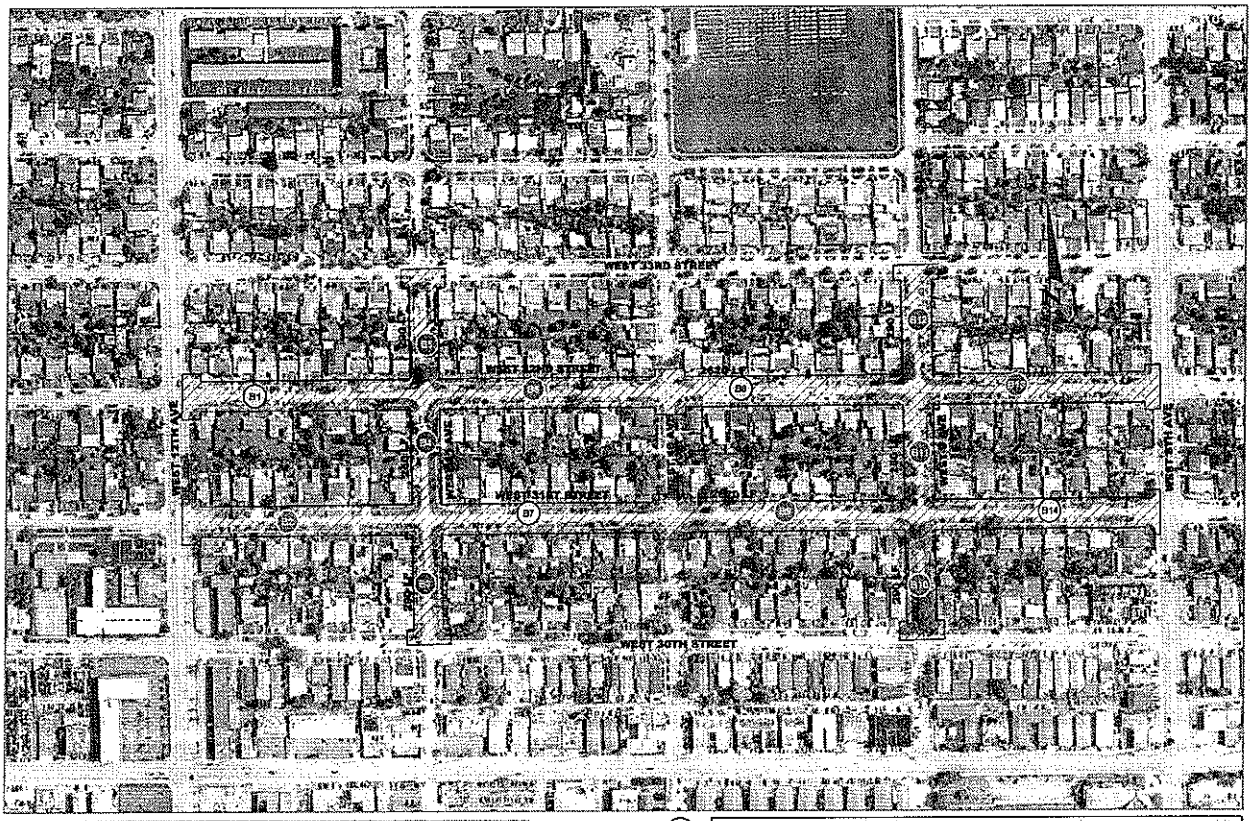
SITE PHOTOGRAPHS

GEOTECHNICAL ENGINEERING SERVICES Hialeah Street Improvements Hialeah, Miami-Dade County Florida		DATE: 03/17/2016 DRAWN: CA	psi Information To Build On Engineering • Consulting • Testing
FIGURE No.: 3	PSI PROJECT No.: 0397-1042	CHKD:: JD	

BORING LOCATION PLAN



Approximate SPT Boring Location

Approximate SPT Boring/Percolation Test Location

GEOTECHNICAL ENGINEERING SERVICES Hialeah Street Improvements Hialeah, Miami-Dade County Florida	DATE: 03/17/2016 DRAWN: CA	psi Information To Build On Engineering • Consulting • Testing
FIGURE No.: 4	PSI PROJECT No.: 0397-1042	CHKD:: JD

BORING B-1

DATE STARTED:	2/25/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/25/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	15.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION: N/A	OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
	While Drilling	4.6 feet
	Upon Completion	4.6 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎	Additional Remarks
	0					ASPHALT (2" Thick)					
						Light Brown/Gray LIMEROCK with Fine Sand	GP-GM				
				1		Light Brown/Gray Fine SAND	SP	11-7-5-4 N=12			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				4-8-9-5 N=17			
	5			3				4-4-2-4 N=6			
				4				6-3-5-5 N=8			
				5				5-4-7-7 N=11			
	10										
				6				8-7-6 N=13			
	15					Note: Percolation Test Performed at 15 Feet Below the Ground Surface					

STANDARD PENETRATION TEST DATA
N in blows/ft ◎
× Moisture ◪ PL ✚ LL
0 25 50

STRENGTH, tsf
▲ Qu ✳ Qp
0 2.0 4.0

Professional Service Industries, Inc.
7950 N.W. 64th Street
Miami, FL 33166
Telephone: (305) 471-7725

PROJECT NO.: 0397-1042
PROJECT: Hialeah Street Improvements
LOCATION: Hialeah, Miami-Dade County Florida

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-2

DATE STARTED:	2/25/16
DATE COMPLETED:	2/25/16
COMPLETION DEPTH	6.0 ft
BENCHMARK:	N/A
ELEVATION:	N/A
LATITUDE:	
LONGITUDE:	
STATION: N/A	OFFSET: N/A
REMARKS:	

DRILL COMPANY:	PSI, Inc.
DRILLER:	LOGGED BY: L.R.
DRILL RIG:	CME-55
DRILLING METHOD:	SPT
SAMPLING METHOD:	SS
HAMMER TYPE:	Automatic
EFFICIENCY	N/A
REVIEWED BY:	J.D./C.A.

Water		
	While Drilling	4.4 feet
	Upon Completion	4.4 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ / STRENGTH, tsf	Additional Remarks
	0					ASPHALT (2" Thick)					
				1		Light Brown/Gray LIMEROCK with Fine Sand	GP-GM	14-9-4-5 N=13			
				2		Light Brown/Gray Fine SAND with Limerock	SP	6-5-4-4 N=9			
	5			3		Light Brown/Gray Fine SAND	SP	2-3-3-2 N=6			

Moisture: × Moisture; PL; LL — 0 25 50

STRENGTH, tsf: ▲ Qu; ✳ Qp — 0 2.0 4.0

Professional Service Industries, Inc.
7950 N.W. 64th Street
Miami, FL 33166
Telephone: (305) 471-7725

PROJECT NO.: 0397-1042
PROJECT: Hialeah Street Improvements
LOCATION: Hialeah, Miami-Dade County Florida

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-3

DATE STARTED:	2/25/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/25/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	6.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION:	N/A	OFFSET: N/A	REVIEWED BY: J.D./C.A.

REMARKS:

Water: While Drilling 4.3 feet; Upon Completion 4.3 feet; Delay N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
				1		Light Brown/Gray LIMEROCK with Fine Sand	GP-GM	17-12-8-7 N=20			
				2		Light Brown/Gray LIMESTONE with Fine Sand		7-6-6-6 N=12			
	5			3				5-4-5-5 N=9			

Professional Service Industries, Inc.
7950 N.W. 64th Street
Miami, FL 33166
Telephone: (305) 471-7725

PROJECT NO.: 0397-1042
PROJECT: Hialeah Street Improvements
LOCATION: Hialeah, Miami-Dade County Florida

The stratification lines represent approximate boundaries. The transition may be gradual.

BORING B-4

DATE STARTED:	2/25/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/25/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	6.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION:	N/A	OFFSET: N/A	REVIEWED BY: J.D./C.A.

REMARKS:

Water: While Drilling 4.3 feet; Upon Completion 4.3 feet; Delay N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎	Additional Remarks
	0					Light Brown/Gray LIMEROCK with Fine Sand					
				1			GP-GM	11-7-6-4 N=13			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				5-5-6-6 N=11			
	5			3				5-4-3-3 N=7			

STANDARD PENETRATION TEST DATA: N in blows/ft ◎; × Moisture; ◪ PL; ✚ LL; 0 25 50

STRENGTH, tsf: ▲ Qu; ✳ Qp; 0 2.0 4.0

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BORING B-5

DATE STARTED:	2/25/16
DATE COMPLETED:	2/25/16
COMPLETION DEPTH	6.0 ft
BENCHMARK:	N/A
ELEVATION:	N/A
LATITUDE:	
LONGITUDE:	
STATION: N/A	OFFSET: N/A
REMARKS:	
DRILL COMPANY:	PSI, Inc.
DRILLER:	LOGGED BY: L.R.
DRILL RIG:	CME-55
DRILLING METHOD:	SPT
SAMPLING METHOD:	SS
HAMMER TYPE:	Automatic
EFFICIENCY	N/A
REVIEWED BY:	J.D./C.A.

Water: While Drilling 4.3 feet; Upon Completion 4.3 feet; Delay N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
						Light Brown/Gray LIMEROCK with Fine Sand	GP-GM				
				1		Light Brown/Gray Fine SAND	SP	13-6-8-7 N=14			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				5-6-7-9 N=13			
	5			3				8-8-6-6 N=14			

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BORING B-6

DATE STARTED:	2/25/16
DATE COMPLETED:	2/25/16
COMPLETION DEPTH	6.0 ft
BENCHMARK:	N/A
ELEVATION:	N/A
LATITUDE:	
LONGITUDE:	
STATION: N/A	OFFSET: N/A
REMARKS:	

DRILL COMPANY:	PSI, Inc.
DRILLER:	LOGGED BY: L.R.
DRILL RIG:	CME-55
DRILLING METHOD:	SPT
SAMPLING METHOD:	SS
HAMMER TYPE:	Automatic
EFFICIENCY	N/A
REVIEWED BY:	J.D./C.A.

Water		
	While Drilling	4.4 feet
	Upon Completion	4.4 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					Light Brown/Gray LIMEROCK with Fine Sand	GP-GM				
				1		Light Brown/Gray Fine SAND	SP	15-9-6-6 N=15			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				6-8-8-7 N=16			
	5			3				7-5-6-4 N=11			

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BORING B-7

DATE STARTED:	2/25/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/25/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	15.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION: N/A	OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
	While Drilling	4.3 feet
	Upon Completion	4.3 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✤ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					Dark Brown Organic Fine SAND with Traces of Roots (Topsoil)	OL				
				1		Light Brown/Gray Fine SAND	SP	3-4-6-6 N=10			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				5-10-11-5 N=21			
	5			3				4-12-11-11 N=23			
				4				8-9-10-9 N=19			
				5				6-7-5-4 N=12			
	10										
				6				6-5-5 N=10			
	15					Note: Percolation Test Performed at 15 Feet Below the Ground Surface					

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BORING B-8

DATE STARTED:	2/26/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/26/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	15.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION: N/A	OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
	While Drilling	4.8 feet
	Upon Completion	4.8 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✤ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2.5" Thick)					
				1		Light Brown/Gray LIMEROCK with Fine Sand	GP-GM	16-8-6-6 N=14			
						Light Brown/Gray Fine SAND	SP				
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				7-6-6-6 N=12			
	5			3				8-8-7-7 N=15			
				4				9-4-4-5 N=8			
				5				5-6-7-5 N=13			
	10										
				6				4-3-4 N=7			
	15					Note: Percolation Test Performed at 15 Feet Below the Ground Surface					

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BORING B-9

DATE STARTED:	2/26/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/26/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	6.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION: N/A	OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
	While Drilling	4.4 feet
	Upon Completion	4.4 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
						Light Brown/Gray LIMEROCK with Fine Sand	GP-GM				
				1		Light Brown/Gray Fine SAND	SP	15-12-5-4 N=17			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				4-6-4-6 N=10			
	5			3				6-3-7-5 N=10			

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BORING B-10

DATE STARTED:	2/26/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/26/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	6.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION: N/A	OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
	While Drilling	4.4 feet
	Upon Completion	4.4 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
						Light Brown/Gray LIMEROCK with Fine Sand	GP-GM				
				1		Light Brown/Gray Fine SAND	SP	15-7-5-5 N=12			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				6-5-4-5 N=9			
	5			3				5-3-4-4 N=7			

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BORING B-11

DATE STARTED:	2/26/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/26/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	6.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION:	N/A OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
	While Drilling	4.6 feet
	Upon Completion	4.6 feet
	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-Inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
						Light Brown/Gray LIMEROCK with Fine Sand	GP-GM	17-8-7-6 N=15			
				1		Light Brown/Gray Fine SAND	SP				
						Light Brown/Gray LIMESTONE with Fine Sand		4-4-6-4 N=10			
				2							
	5			3				3-4-5-5 N=9			

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BORING B-12

DATE STARTED:	2/26/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/26/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	6.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION:	N/A OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
▽	While Drilling	4.4 feet
▼	Upon Completion	4.4 feet
▼	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
						Light Brown/Gray LIMEROCK with Fine Sand	GP-GM				
	1					Light Brown/Gray Fine SAND	SP	14-9-8-8 N=17			
						Light Brown/Gray LIMESTONE with Fine Sand					
	2							6-5-4-5 N=9			
	5			3				5-4-4-3 N=8			

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BORING B-13

DATE STARTED:	2/26/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/26/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	6.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION: N/A	OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water: While Drilling 4.8 feet; Upon Completion 4.8 feet; Delay N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
						Light Brown/Gray LIMEROCK with Fine Sand	GP-GM				
				1		Light Brown/Gray Fine SAND	SP	14-9-6-4 N=15			
						Light Brown/Gray LIMESTONE with Fine Sand					
				2				2-3-3-5 N=6			
	5			3				13-11-9-9 N=20			

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BORING B-14

DATE STARTED:	2/26/16	DRILL COMPANY:	PSI, Inc.
DATE COMPLETED:	2/26/16	DRILLER:	LOGGED BY: L.R.
COMPLETION DEPTH	15.0 ft	DRILL RIG:	CME-55
BENCHMARK:	N/A	DRILLING METHOD:	SPT
ELEVATION:	N/A	SAMPLING METHOD:	SS
LATITUDE:		HAMMER TYPE:	Automatic
LONGITUDE:		EFFICIENCY	N/A
STATION: N/A	OFFSET: N/A	REVIEWED BY:	J.D./C.A.

REMARKS:

Water		
▽	While Drilling	5.5 feet
▼	Upon Completion	5.5 feet
▼	Delay	N/A

BORING LOCATION: Refer to Figure 4

Elevation (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (inches)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch (SS)	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ◎ × Moisture ◪ PL ✚ LL (0, 25, 50) STRENGTH, tsf ▲ Qu ✳ Qp (0, 2.0, 4.0)	Additional Remarks
	0					ASPHALT (2" Thick)					
				1		Light Brown/Gray LIMEROCK with Fine Sand	GP-GM	16-9-6-8 N=15			
						Light Brown/Gray Fine SAND	SP				
				2		Light Brown/Gray LIMESTONE with Fine Sand		3-3-4-4 N=7			
	5			3				7-6-4-4 N=10			
				4				4-3-3-3 N=6			
				5				5-6-6-8 N=12			
	10										
				6				5-7-6 N=13			
	15					Note: Percolation Test Performed at 15 Feet Below the Ground Surface					

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APPENDIX B

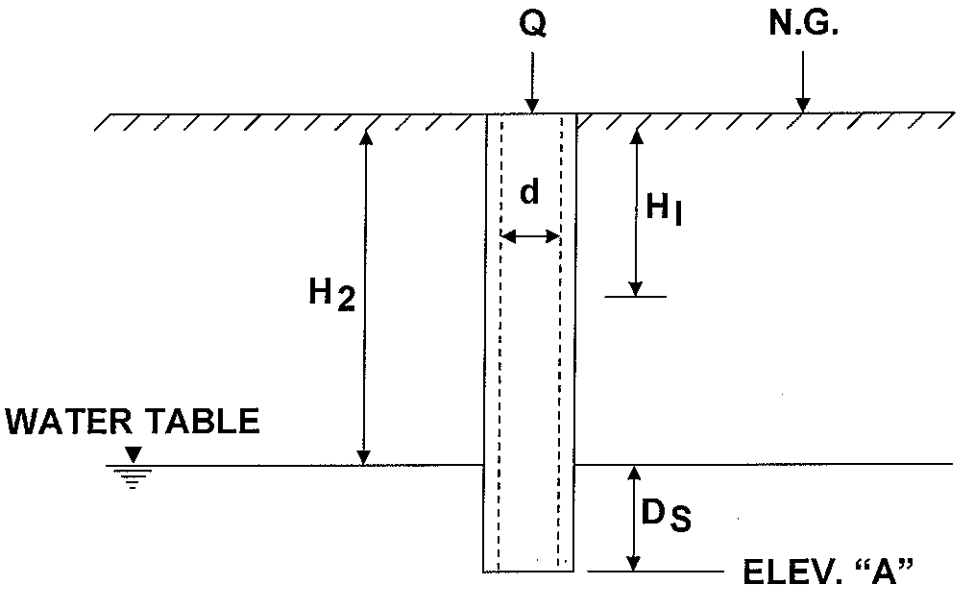
PSI Information To Build On
Engineering • Consulting • Testing

TABLE 1: SUMMARY OF PERCOLATION TEST RESULTS
HIALEAH ROADWAY IMPROVEMENTS
CITY OF HIALEAH, FLORIDA
PSI PROJECT No.: 0397-1042

Test No.	Date Performed	Diameter Casing (Inches)	Diameter Perforated PVC (Inches)	Depth of Hole (Feet)	Depth to Groundwater Level Below Ground Surface (Feet) Prior to Test	Depth to Groundwater Level Below Ground Surface (Feet) During Test	Hydraulic Head, H2 (Feet)	Saturated Hole Depth, Ds (Feet)	Average Flow Rate, Q (gpm)	K, Hydraulic Conductivity cfs/ft^2-ft
B-1	25-Feb-16	6	4	15.0	4.6	0.0	4.6	10.4	58.0	1.4E-03
B-7	25-Feb-16	6	4	15.0	4.3	0.0	4.3	10.7	58.0	1.5E-03
B-8	26-Feb-16	6	4	15.0	4.8	0.0	4.8	10.2	58.0	1.3E-03
B-14	26-Feb-16	6	4	15.0	5.5	0.0	5.5	9.5	58.0	1.2E-03

Note:
(1) The above hydraulic conductivity values are for a french drain installed to the same depth as the borehole tests. The values represent an ultimate value. The designer should apply an appropriate factor of safety.
(2) The hydraulic conductivity values were calculated based on the South Florida Water Management District's USUAL OPEN HOLE CONSTANT HEAD percolation test procedure as shown on the following page.
(3) A diameter of six inches was used in the computation of the Hydraulic Conductivity values presented in the above table.

USUAL OPEN – HOLE TEST



$$K = \frac{4Q}{\pi d (2H_2^2 + 4H_2D_S + H_2d)}$$

K= HYDRAULIC CONDUCTIVITY (CFS/FT.^{2} - FT.HEAD)

Q= "STABILIZED" FLOW RATE (CFS)

d= DIAMETER OF TEST HOLE (FEET)

H_2 = DEPTH TO WATER TABLE (FEET)

D_S = SATURATED HOLE DEPTH (FEET)

ELEV. "A"= PROPOSED TRENCH BOTTOM ELEV.

H_1 = AVERAGE HEAD ON UNSATURATED HOLE SURFACE (FT.HEAD)